Interesting Trees

Description

There are many interesting trees in the world. For each node of interesting tree, there is a capital letter on it.

Eddy picks two interesting trees (Tree A and Tree B) and gives you a puzzle!

1. Pick a node x on Tree A
2. Write down the letters on the path of Tree A from 1 to x.
3. Pick a node y on Tree B.
4. Write down the letters on the path of Tree B from 1 to y.

Can you find the nodes x, y such that the length of the longest common subsequence (LCS) is maximum?

Input

The first line contains a integer T indicating the total number of test cases. Each test case starts with one line containing two integers n, m, denoting the number of nodes for tree A and tree B.

Then one line contains a string with length N, the i-th letters denotes the capital letter on node i of Tree A.

Then $n-1$ lines contains two integers u_i, v_i, denoting the edges of Tree A.

Then one line contains a string with length M, the i-th letters denotes the capital letter on node i of Tree B.

Then $m-1$ lines contains two integers x_i, y_i, denoting the edges of Tree B.

- $1 \leq T \leq 514$
- $3 \leq n, m \leq 10^3$
- $1 \leq u_i < v_i \leq n$
- $1 \leq x_i < y_i \leq m$
- There are at most 6 test cases with $\max(n, m) > 100$

Output

For each test case, print the maximum length of the LCS you can find.

Sample Input

```
1
7 7
ABCACBA
1 2
1 3
2 4
2 5
3 6
5 7
ABEBACA
1 2
1 3
2 4
2 5
5 6
6 7
```

Sample Output

```
4
```